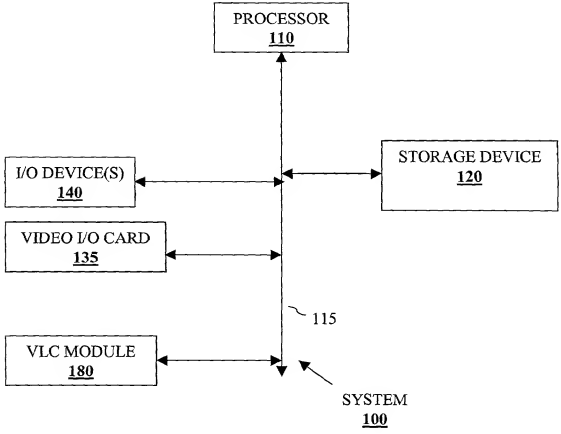
PROCESSOR
110
I/O DEVICE(S)
140
STORAGE DEVICE
120
VIDEO I/O CARD
135
115
VLC MODULE
180
SYSTEM
100

FIG. 1

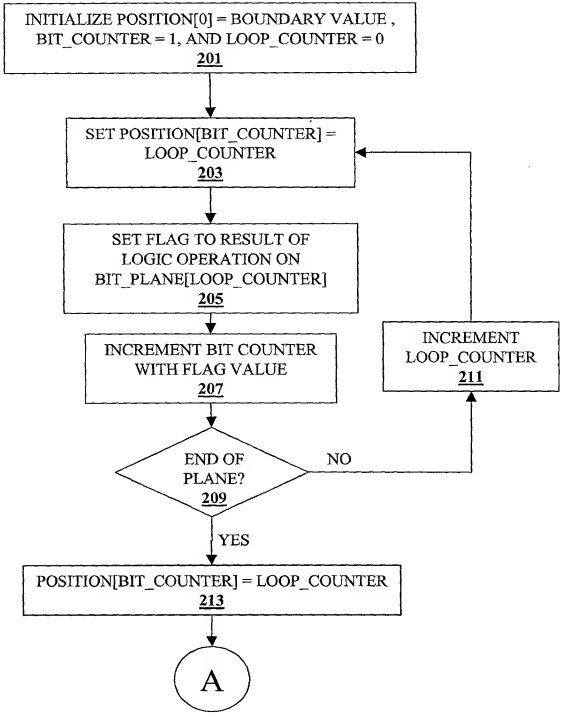
INITIALIZE POSITION[0] = BOUNDARY VALUE , BIT_COUNTER = 1, AND LOOP_COUNTER = 0
201
SET POSITION[BIT_COUNTER] = LOOP_COUNTER
203
SET FLAG TO RESULT OF LOGIC OPERATION ON BIT_PLANE[LOOP_COUNTER]
205
INCREMENT BIT COUNTER WITH FLAG VALUE
207
INCREMENT LOOP_COUNTER
211
END OF PLANE?
209
NO
YES
POSITION[BIT_COUNTER] = LOOP_COUNTER
213
A

FIG. 2A

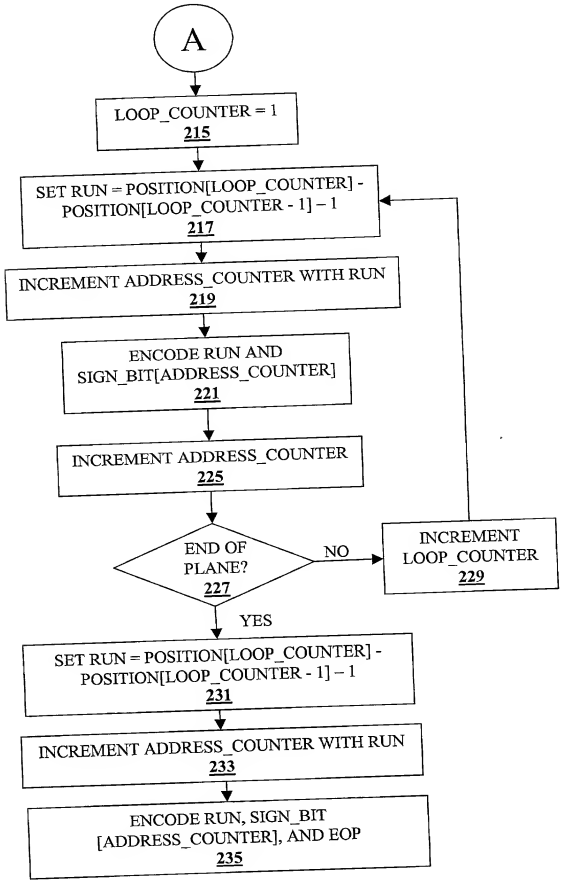
A
LOOP_COUNTER = 1
215
SET RUN = POSITION[LOOP_COUNTER] - POSITION[LOOP_COUNTER - 1] – 1
217
INCREMENT ADDRESS_COUNTER WITH RUN
219
ENCODE RUN AND SIGN_BIT[ADDRESS_COUNTER]
221
INCREMENT ADDRESS_COUNTER
225
END OF PLANE?
227
NO
INCREMENT LOOP_COUNTER
229
YES
SET RUN = POSITION[LOOP_COUNTER] - POSITION[LOOP_COUNTER - 1] – 1
231
INCREMENT ADDRESS_COUNTER WITH RUN
233
ENCODE RUN, SIGN_BIT [ADDRESS_COUNTER], AND EOP
235

FIG. 2B

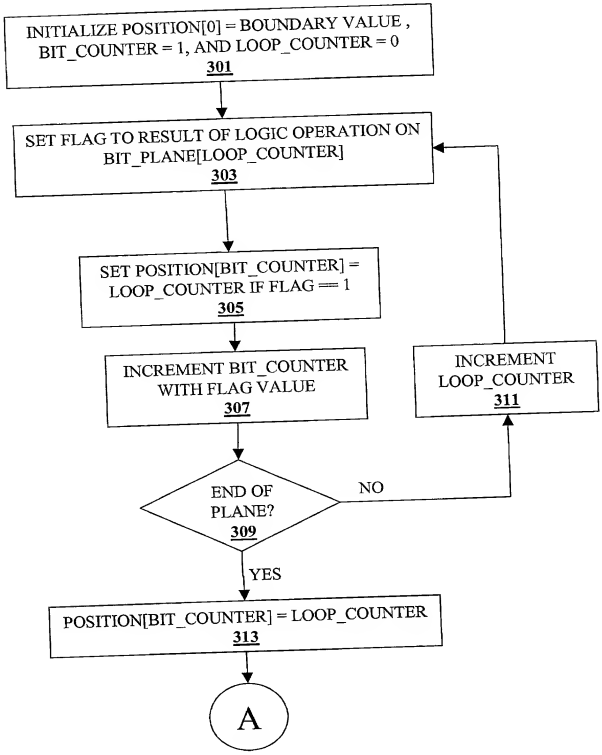
INITIALIZE POSITION[0] = BOUNDARY VALUE , BIT_COUNTER = 1, AND LOOP_COUNTER = 0
301
SET FLAG TO RESULT OF LOGIC OPERATION ON BIT_PLANE[LOOP_COUNTER]
303
SET POSITION[BIT_COUNTER] = LOOP_COUNTER IF FLAG == 1
305
INCREMENT BIT_COUNTER WITH FLAG VALUE
307
INCREMENT LOOP_COUNTER
311
END OF PLANE?
309
NO
YES
POSITION[BIT_COUNTER] = LOOP_COUNTER
313
A

FIG. 3

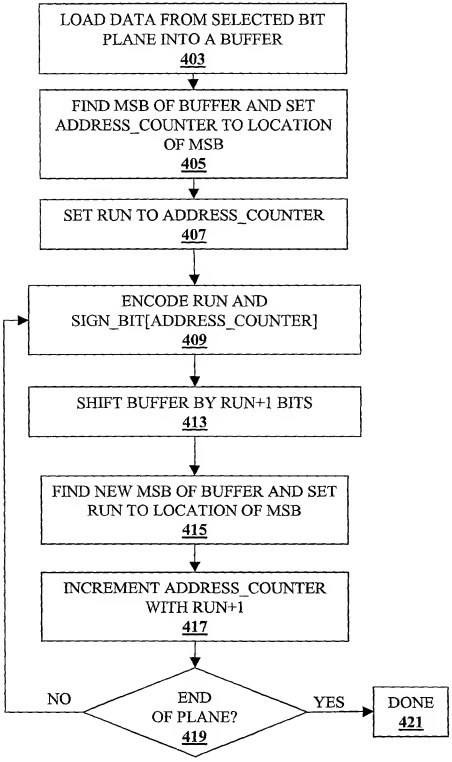
LOAD DATA FROM SELECTED BIT PLANE INTO A BUFFER
403
FIND MSB OF BUFFER AND SET ADDRESS_COUNTER TO LOCATION OF MSB
405
SET RUN TO ADDRESS_COUNTER
407
ENCODE RUN AND SIGN_BIT[ADDRESS_COUNTER]
409
SHIFT BUFFER BY RUN+1 BITS
413
FIND NEW MSB OF BUFFER AND SET RUN TO LOCATION OF MSB
415
INCREMENT ADDRESS_COUNTER WITH RUN+1
417
END OF PLANE?
419
NO
YES
DONE
421

FIG. 4

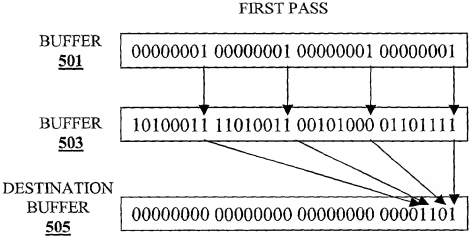
FIRST PASS
BUFFER
501
00000001 00000001 00000001 00000001
BUFFER
503
10100011 11010011 00101000 01101111
DESTINATION
BUFFER
505
00000000 00000000 00000000 00001101

FIG. 5

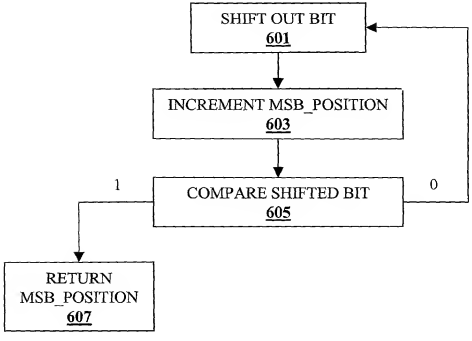
SHIFT OUT BIT
601
INCREMENT MSB_POSITION
603
COMPARE SHIFTED BIT
605
1
0
RETURN
MSB_POSITION
607

FIG. 6

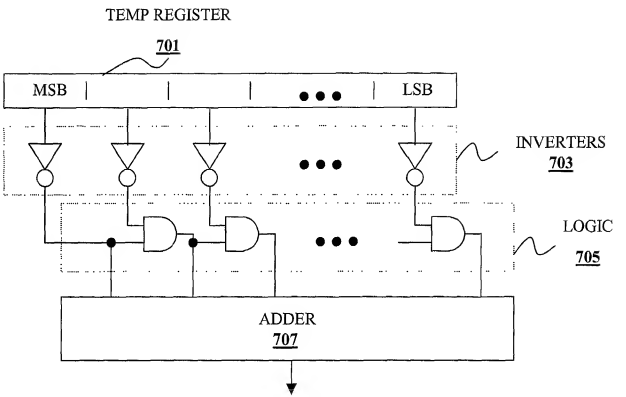

FIG. 7A

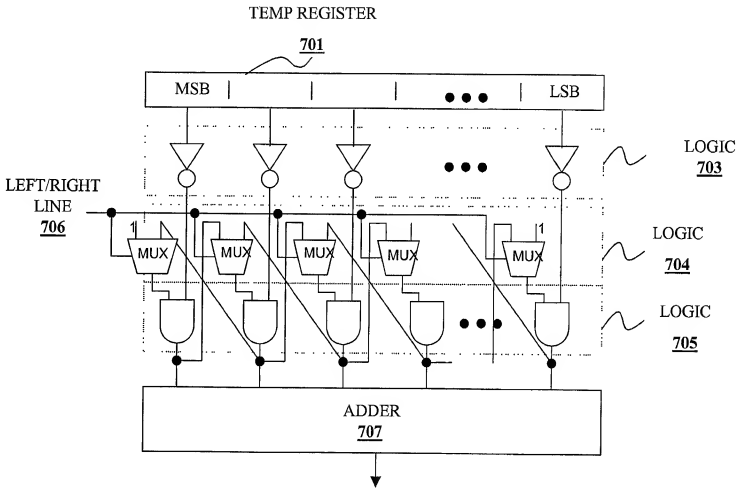
TEMP REGISTER
701
MSB
LSB
LOGIC
703
LEFT/RIGHT
LINE
706
1
MUX
MUX
MUX
MUX
1
MUX
LOGIC
704
LOGIC
705
ADDER
707

FIG. 7B

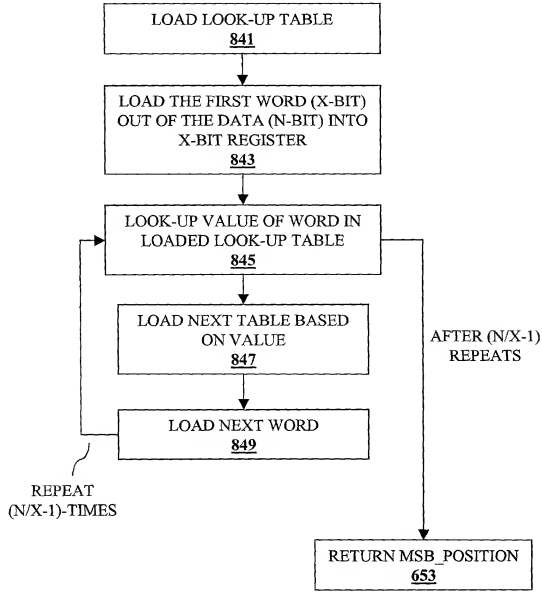
LOAD LOOK-UP TABLE
841
LOAD THE FIRST WORD (X-BIT) OUT OF THE DATA (N-BIT) INTO X-BIT REGISTER
843
LOOK-UP VALUE OF WORD IN LOADED LOOK-UP TABLE
845
LOAD NEXT TABLE BASED ON VALUE
847
LOAD NEXT WORD
849
REPEAT (N/X-1)-TIMES
AFTER (N/X-1) REPEATS
RETURN MSB_POSITION
653

FIG. 8